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(Abstract)

This presentation focuses on the mathematical structure of the phenomenon of multiple coexistence of stable, stationary solutions, which may appear in a class of nonlinear diffusion systems. See, [1]-[4]. (An outline of) a proof of the coexistence phenomenon for the $D_2^{\pm}$-sheets of solutions is presented. This proposition has been introduced as a working hypothesis ("the global conjecture") in the paper presented at the U.S.-Japan Seminar on Nonlinear Partial Differential Equations in Applied Science, 1982 [2]. The complete proof of the proposition will appear in [1].

References

[1] H.FUJII and Y.NISHIURA, "The Structure of Multiple Stable Equilibria in Nonlinear Diffusion Systems", to appear.

[2] H.FUJII and Y.NISHIURA, "Global Bifurcation Diagram in Nonlinear Diffusion Systems", Nonlinear Partial Differential Equations in Applied Science - Proc. of U.S.-Japan Seminar 1982, Tokyo, (Eds. H.Fujita, P.D.Lax and G.Strang), Mathematics Studies 81, North-Holland 1984, 17-36.

[3] H.FUJII and Y.HOSONO, "Neumann Layer Phenomena in Nonlinear Diffusion Systems", Recent Topics in Nonlinear PDE, (Eds. M.Mimura and T.Nishida), Mathematics Studies 98, North-Holland 1984, 21-38.

[4] H.FUJII, M.MIMURA and Y.NISHIURA, "A Picture of the Global Bifurcation Diagram in Ecological Interacting and Diffusing Systems", Physica D, 5(1982), 1-42.